Amendments to the Claims

Listing of Claims:

1. (previously presented) An optical drive system comprising:

an optical disc;

an object lens for focusing light on the optical disc;

a tilt servo for adjusting a tilt angle between the optical disc and the object lens;

an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

a DPD generator for generating a differential phase detection (DPD) signal according to the output of the OEIC; and

a tilt search block receiving the DPD signal and being connected to the tilt servo, wherein the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the DPD signal, and when controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the DPD signal, the tilt search block finding an optimal tilt angle having a lowest amplitude DPD signal.

2. (original) The optical drive system of claim 1, wherein the tilt search block further comprises an amplifier for amplifying the DPD signal such that the amplified DPD signal corresponds to a maximum allowable input signal level for the tilt search block, and the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the amplified DPD signal.

3. (original) The optical drive system of claim 1, wherein the tilt search block further comprises an analog to digital converter to convert the DPD signal to a digital DPD signal, and the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the digital DPD signal.

4. (cancelled)

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5. (previously presented) The optical drive system of claim 1, wherein to find the optimal tilt angle having the lowest amplitude DPD signal, the tilt search block controls the tilt servo to adjust the tilt angle to a first plurality of angles, measures the amplitudes of the DPD signals for the first plurality of angles, controls the tilt servo to adjust the tilt angle to a second plurality of angles centered at the angle having the lowest amplitude DPD signal in the first plurality of angles, and measures the amplitudes of the DPD signals for the second plurality of angles to find the optimal tilt angle.

6. (original) The optical drive system of claim 5, wherein the angle spacing between the first plurality of angles is larger than the angle spacing between the second plurality of angles.

7. (previously presented) The optical drive system of claim 1, wherein the tilt search block iteratively scans a plurality of angles, each plurality of angles having decreasing angle differences, until the optimal tilt angle having the lowest amplitude DPD signal is found.

8. (previously presented) A method of calibrating the tilt angle between an optical disc and an object lens in an optical storage device, the method comprising the following steps:

providing a tilt servo for adjusting the tilt angle between the optical disc and the object lens;

providing an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

generating a differential phase detection (DPD) signal according to the output of the OEIC;

controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the DPD signal; and

when controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the DPD signal, finding an optimal tilt angle having a lowest amplitude DPD signal.

9. (original) The method of claim 8, further comprising amplifying the DPD signal, and controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the amplified DPD signal.

10. (original) The method of claim 8, further comprising converting the DPD signal to a digital DPD signal, and controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the digital DPD signal.

11. (cancelled)

12. (previously presented) The method of claim 8, wherein finding the optimal tilt angle having the lowest amplitude DPD signal comprises controlling the tilt servo to adjust the tilt angle to a first plurality of angles, measuring the amplitudes of the DPD signals for the first plurality of angles, controlling the tilt servo to adjust the tilt angle to a second plurality of angles centered at the angle having the lowest amplitude DPD signal in the first plurality of angles, and measuring the amplitudes of the DPD signals for the second plurality of angles to find the optimal tilt angle.

13. (original) The method of claim 12, wherein the angle spacing between the first plurality of angles is larger than the angle spacing between the second plurality of angles.

14. (previously presented) The method of claim 13, wherein finding the optimal tilt angle having the lowest amplitude DPD signal comprises iteratively scanning a plurality of angles having decreasing angle differences until the optimal tilt angle having the lowest amplitude DPD signal is found.

15. (previously presented) The optical drive system of claim 1, wherein the tilt search block is further for finding the optimal tilt angle by comparing only different amplitudes of the DPD signal corresponding to different tilt angles, the optimal

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tilt angle having the lowest amplitude DPD signal.

16. (previously presented) The optical drive system of claim 1, wherein the tilt search block is further for setting the tilt angle between the optical disc and the object lens to the optimal tilt angle.

17. (previously presented) The method of claim 8, further comprising finding the optimal tilt angle by comparing only different amplitudes of the DPD signal corresponding to different tilt angles, the optimal tilt angle having the lowest amplitude DPD signal.

18. (previously presented) The method of claim 8, further comprising setting the tilt angle between the optical disc and the object lens to the optimal tilt angle.

19. (previously presented) An optical drive system comprising:
an optical disc;
an object lens for focusing light on the optical disc;
a tilt servo for adjusting a tilt angle between the optical disc and the object lens;
an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;
a DPD generator for generating a differential phase detection (DPD) signal according to the output of the OEIC; and
a tilt search block receiving the DPD signal and being connected to the tilt servo, wherein the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens according to only the DPD signal.

20. (previously presented) A method of calibrating the tilt angle between an optical disc and an object lens in an optical storage device, the method comprising:
providing a tilt servo for adjusting the tilt angle between the optical disc and the object lens;
providing an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

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generating a differential phase detection (DPD) signal according to the output of the OEIC;

controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to only the DPD signal.

21. (new) An optical drive system comprising:

an optical disc;

an object lens for focusing light on the optical disc;

a tilt servo for adjusting a tilt angle between the optical disc and the object lens;

an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

a DPD generator for generating a differential phase detection (DPD) signal according to the output of the OEIC; and

a tilt search block receiving the DPD signal and being connected to the tilt servo, wherein the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens to a plurality of angles and then finds a specific tilt angle from the plurality of angles according to the DPD signal.

22. (new) A method of calibrating a tilt angle between an optical disc and an object lens in an optical storage device, the method comprising:

providing a tilt servo for adjusting the tilt angle between the optical disc and the object lens;

providing an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

generating a differential phase detection (DPD) signal according to the output of the OEIC; and

controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens to a plurality of angles, and then finding a specific tilt angle from the plurality of angles according to the DPD signal.